

## TETRAPTERYS ANOMALA, A NEW SPECIES OF MALPIGHIACEAE FROM GUYANA

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ABSTRACT. The new species *Tetrapterys anomala* W. R. Anderson is described, illustrated, and discussed. Among the known species of *Tetrapterys* subgenus *Tetrapterys* it is unique in its coherent styles, and nearly unique in combining minute, distinct, interpetiolar stipules with glands on the abaxial surface of the lamina. The presence of miniature leaves in the inflorescence and outgrowths between the dorsal and lateral wings of the samara suggests that its closest relatives may be *T. discolor* (G. Mey.) DC. and allies in section *Tetrapterys*.

Niendenzu (1928) placed the species of *Tetrapterys* with umbels (as opposed to pseudoracemes) in his subgenus *Caulolepis* Nied., which we would today call subgenus *Tetrapterys* because it includes the lectotype of the genus, *T. inaequalis* Cav. All of those species have the stipules interpetiolar, i.e., borne on the stem between and quite distinct from the petioles. Niendenzu's groupings within that subgenus rely heavily on whether the stipules between each pair of petioles are distinct or connate. Another informative character in that subgenus (not emphasized by Niendenzu) is the position of the lamina glands, marginal or borne on the abaxial surface. The plant described here does not have its states of those two characters associated as they are in most species of the subgenus, and its gynoeceum is most peculiar. I am proposing for this species the epithet *anomala* to draw attention to its gynoeceum and to its association of distinct stipules with glands on the surface of the lamina.

***Tetrapterys anomala*** W. R. Anderson, sp. nov.—TYPE: GUYANA. Potaro-Siparuni Region: Mt. Ayanganna, east face, plateau above first escarpment, 1 km N of camp, 1100 m, 05°20'19"N, 59°56'46"W, dense forest on white sand, sandstone, and peat, 13 Jun 2001 fl, *Clarke 9105* (holotype: MICH!). Fig. 1.

Liana caulibus pertinaciter sericeis; lamina foliorum majorum 6.5–9 cm longa, 3.2–4.5 cm lata, abaxialiter tenuiter sed pertinaciter sericea et multis glandulis minutis dispersis inter costam et marginem instructa; petiolus 7–12 mm longus, eglandulosus; stipulae nullae (?) vel minutae, distinctae, interpetiolares; inflorescentia foliis diminutis instructa, floribus in umbellis 4-floris portatis; petala aurantiaca, glabra; stamina ± aequalia; styli 3, aequales, crassi, erecti, cohaerentes sed non connati, stigmatibus non terminalibus; samara 4 alis lateralibus 15–20 mm longis, 5–8 mm latis, ala dorsali 7 mm alta, 3–5 mm lata, nuce inter alam dorsalem et alas laterales aliquot alulis linearibus usque ad 6 mm longis et 1 mm latis instructa.

Liana, the stems densely and persistently sericeous or, when young, velutino-sericeous. Lamina of larger leaves 6.5–9 cm long, 3.2–4.5 cm wide, ovate to nearly elliptical, cuneate to rounded at base, abruptly short-acuminate at apex, originally sericeous above but soon glabrate or persistently loosely sericeous on midrib, persistently sericeous below with the hairs short, straight, strongly appressed and parallel, numerous but not nearly abundant enough to hide epidermis except on midrib,

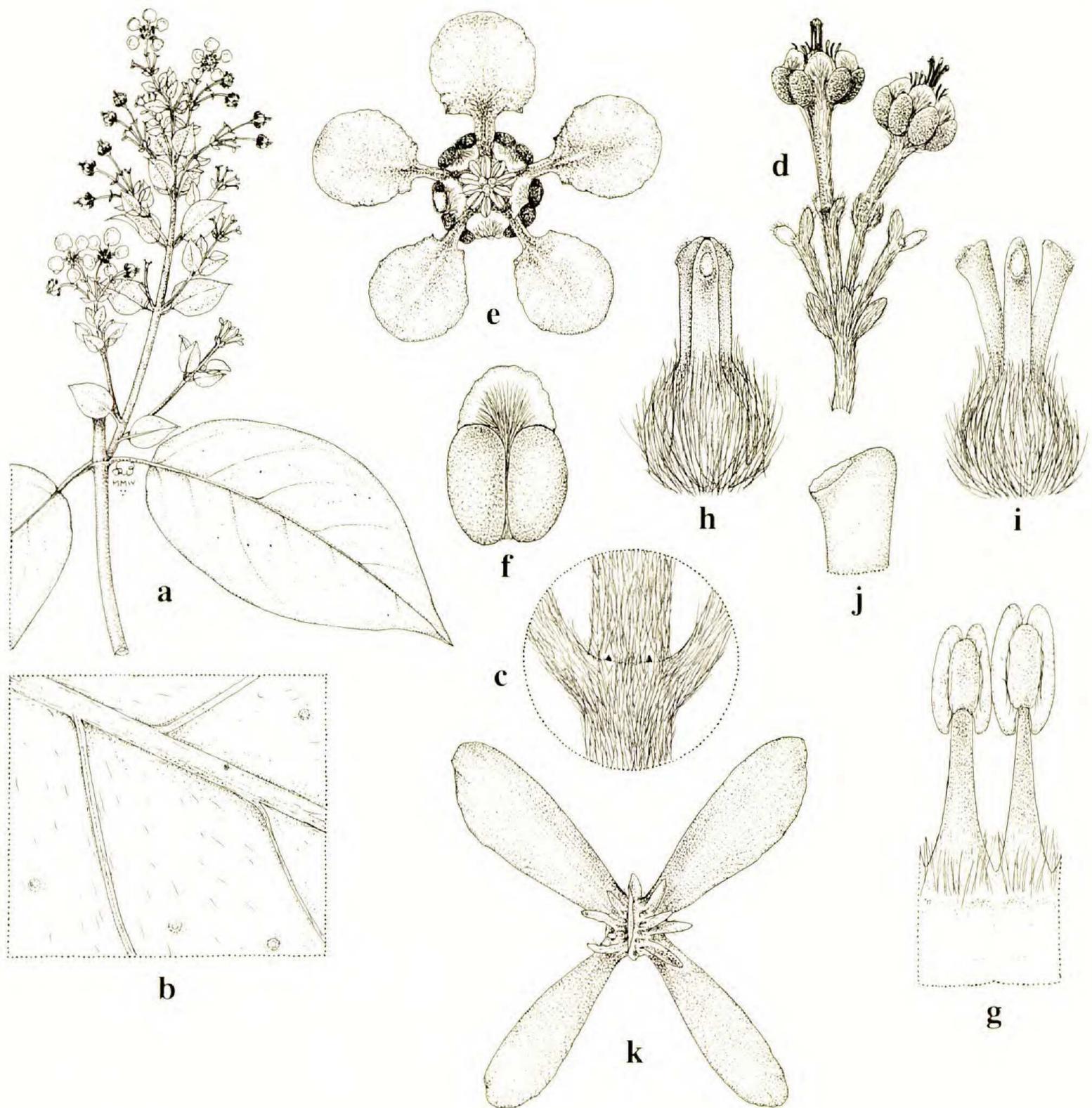


FIG. 1. *Tetraapterys anomala*. a. Flowering branch,  $\times 0.5$ . b. Abaxial surface of lamina to show minute glands,  $\times 5$ . c. Node to show minute stipules on interpetiolar ridge,  $\times 5$ . d. 4-flowered umbel,  $\times 2.5$ . e. Flower from above, posterior petal uppermost,  $\times 2.5$ . f. Lateral sepal, abaxial view,  $\times 7.5$ . g. Two stamens, abaxial view,  $\times 15$ . h. Gynoecium from young flower with styles coherent,  $\times 10$ . i. Gynoecium from old flower after styles have separated,  $\times 10$ . j. Apex of style,  $\times 25$ . k. Samara, abaxial view,  $\times 1.5$ . (Based on: a–j, Clarke 9105, MICH; k, Redden 2510, MICH.)

bearing impressed in abaxial surface between midrib and margin 6–12 tiny glands on each side, ca. 0.3 mm in diameter, irregularly dispersed (i.e., not in a single row) with none at very base, the principal lateral veins 6–9 on each side; petiole 7–12 mm long, densely and  $\pm$  persistently sericeous, eglandular; stipules absent (?) or distinct triangular nubbins ca. 0.3 mm long, borne on the low interpetiolar ridge, often  $\pm$  hidden by hairs, persistent (always?). Inflorescence axillary and terminal, densely and persistently golden-velutino-sericeous, a panicle containing much-reduced elliptical or orbicular leaves (non-floriferous bracts) with the lamina 5–15 mm long and 3–12 mm wide, the petiole 2–5 mm long, and persistently densely sericeous on both sides, the flowers borne in 4-flowered umbels; floriferous bracts 1.5–2.2 mm long, 0.8–1.2 mm wide, lanceolate or elliptical, abaxially sericeous, adaxially glabrous, eglandular, persistent; peduncle 2.5–6.5 mm long, persistently loosely sericeous; bracteoles like

bracts but mostly somewhat smaller, borne at apex of peduncle; pedicel 4–7 mm long, originally loosely sericeous but irregularly glabrescent to nearly glabrate in age. Sepals 1.2–1.5 mm long beyond glands, 1.5–2 mm wide, broadly rounded, appressed in anthesis, abaxially sericeous in center and glabrous toward margin, adaxially glabrous, the lateral 4 biglandular with the glands yellow, 2–2.3 mm long, broadly elliptical, symmetrical, sessile, the anterior sepal eglandular or bearing 1 small gland. Petals orange, glabrous, entire or slightly erose; 4 lateral petals spreading, the limb 4 mm long, 4–4.5 mm wide, orbicular or obovate or slightly oblate, the claw 1.5–1.7 mm long; posterior petal suberect, the limb 3.5 mm long, 4.5 mm wide, oblate, the claw 2.5 mm long and thicker than in lateral petals. Filaments ca. 2 mm long,  $\pm$  alike, straight, connate proximally, abaxially pilose at base, adaxially glabrous; anthers ca. 1 mm long,  $\pm$  alike, glabrous (?) or sparsely sericeous on sides. Ovary ca. 1.5 mm high, densely hirsute, all 3 locules fertile; styles 3, ca. 1.5 mm long, glabrous, alike, stout, erect, pressed together in anthesis (coherent but not connate) and turned so that their large (but not decurrent) stigmas face outward, obtuse at apex; styles separating in old flowers. Samaras separating from a pyramidal torus 3 mm high and 2.5 mm across; samara loosely sericeous or tomentose on nut, sericeous on wings; 4 lateral wings well developed, 15–20 mm long, 5–8 mm wide, narrowly obovate, subequal or the upper pair slightly larger than the lower pair; dorsal wing 7 mm high, 3–5 mm wide, semicircular or roughly triangular, extending between lateral wings at apex; nut ribbed at right angles to dorsal wing and bearing between dorsal and lateral wings several irregular linear outgrowths up to 6 mm long and 1 mm wide; ventral areole 3–4 mm high, 3 mm wide, ovate.

ADDITIONAL SPECIMEN EXAMINED. **Guyana.** CUYUNI-MAZARUNI REGION: Pakaraima Mts., Mazaruni River, NW of Chi-Chi Falls, along stream between two tepuis, ca. 1.5 km above Base Camp 2, 762 m, 05°35'48.6"N, 60°12'48.8"W, very moist, dense forest, Feb fr, *Redden 2510* (MICH).

This species is known only from the two collections cited above. The label with the type said it was a liana; that with *Redden 2510* described it as a “tree to 4 m.” Given the fact that most species in this genus are woody vines, I believe this one is more likely to be a liana than a tree.

I can find only one other species of *Tetrapteryx* that consistently combines distinct interpetiolar stipules with glands on the surface of the lamina, the condition found in *T. anomala*. That species is *T. mucronata* Cav., which is common and widespread in South America. As I have noted before (Anderson 2001, p. 183), *T. mucronata* is a variable species that may deserve division, but it could not possibly accommodate the plants described here as *T. anomala*. *Tetrapteryx mucronata* has the leaves glabrous or soon glabrate, and the stems are usually similar. The inflorescence lacks the miniature leaves found in *T. anomala*, the floriferous bracts are very narrow, and the calyx glands (if present) become stalked in age. The styles are distinct, long and slender, tapered distally, with the small stigma terminal or slightly internal. The upper lateral wings of the samara are much longer than the lower, about twice as long. These characters suggest that *T. anomala* and *T. mucronata* are not even very closely related.

The presence of miniature leaves (non-floriferous bracts) in the inflorescence suggests that the closest relatives of *T. anomala* are probably to be found in section *Tetrapteryx* (section *Lophogynixa* Nied.), in which such bracts are common. Perhaps one should look to *T. discolor* (G. Mey.) DC. and allied species, because those plants have well-developed outgrowths between the dorsal and lateral wings of the samara,

as in *T. anomala*, but they all have much larger stipules that are connate in interpetiolar pairs, which are often caducous.

The gynoecium in *T. anomala* is unlike any I have seen before in *Tetrapterys*. In early flower the three styles are coherent but easily separated, forming a columnar structure as if they were standing back-to-back with their stigmas facing outward; the appearance is reminiscent of the gynoecium in some species of *Bunchosia*. The stigma is presumably on the internal angle of the style, which suggests that the styles must be twisted so that the stigmas will face outward, but that twisting is not obvious in the very limited material now available for study. The stout styles and large stigmas are consistent with species of *Tetrapterys* section *Tetrapterys*, but the stigma here is not decurrent, as it is in many species of section *Tetrapterys*.

### ACKNOWLEDGMENTS

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